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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,265	02/12/2004	Atsushi Suda	826.1920	5496

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EXAMINER

LEE, DAVID J

ART UNIT	PAPER NUMBER
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2613

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/776,265

Applicant(s)

SUDA ET AL.

Examiner

David Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/14/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 3, 7, 8, 10, and 14 recite the limitation "the static characteristic." There is insufficient antecedent basis for this limitation in the claim.

Claims 4 and 11 recite the limitation "said comparison unit compares an untoothed waveform obtained by removing alternate pulses from a signal with a frequency twice as much as that of the signal with the low frequency, with a waveform with a frequency component twice

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as much as that of the signal with the low frequency.” It is unclear what is meant by “untoothed” waveform.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5, 7-12, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamoto et al. (US Patent No. 6,317,249 B1).

Regarding claims 1 and 8, as it is best understood in view of the 112 rejection above, Nakamoto teaches an optical modulator having a function to compensate for the change of the static characteristic of an external modulator (fig. 2; Abstract), comprising: a superimposition unit superimposing a signal with a low frequency on an optical signal outputted by the external modulator (superimposing circuit 3 of fig. 2 superimposes low frequency signal from low frequency oscillator 8, outputted by external modulator 4); an extraction unit extracting a component of an optical signal corresponding to the superimposed signal (light receiving element 6 of fig. 2 extracts the superimposed signal); a comparison unit comparing the extracted signal with the signal with the low frequency (synchronous detecting circuit 73 of fig. 2 compares the extracted signal with low frequency signal from oscillator 8); and a change unit changing an amplitude of a driving signal to be supplied to the external modulator, based on an output of the comparison unit (the amplitude of the signal is amplified via amplifiers 102 and

104 based on the output of synchronous detecting circuit 73).

Regarding claims 2 and 9, Nakamoto teaches that the comparison unit outputs a result of adding a voltage of the extracted signal to a voltage of the signal with the low frequency (see e.g., col. 3, lines 40-44).

Regarding claims 3 and 10, as it is best understood in view of the 112 rejection above, Nakamoto teaches that the comparison unit detects cases where an amplitude of the driving signal is larger and smaller than the static characteristic of the external modulator using as reference a comparison value in a case that the static characteristic of the external modulator and an amplitude of the driving signal coincide (see e.g., col. 3, line 53 to col. 4, line 4).

Regarding claims 4 and 11, as it is best understood in view of the 112 rejection above, Nakamoto teaches that the comparison unit compares an untoothed waveform obtained by removing alternate pulses from a signal with a frequency twice as much as that of the signal with the low frequency, with a waveform with a frequency component twice as much as that of the signal with the low frequency (see e.g., fig. 5; see also col. 4, lines 29-44).

Regarding claims 5 and 12, Nakamoto teaches that said superimposition unit superimposes a signal with the low frequency on an optical output of the external modulator by applying a signal voltage with the low frequency to a driving electrode of the external modulator (superimposing circuit 3 of fig. 2 applies signal voltage from low frequency oscillator 8).

Regarding claims 7 and 14, as it is best understood in view of the 112 rejection above, Nakamoto teaches an optical modulator having a function to compensate for the change of the static characteristic of an external modulator (see fig. 2 and Abstract), comprising: a superimposition unit superimposing signals each with a first or second low frequency on an

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optical signal outputted by the external modulator (superimposing circuit 3 of fig. 2 superimposes low frequency signal from low frequency oscillator 8, outputted by external modulator 4); an extraction unit extracting a component of an optical signal corresponding to the superimposed signal (light receiving element 6 of fig. 2 extracts the superimposed signal); a comparison unit comparing the extracted signal and signals with the first and the second low frequency (synchronous detecting circuit 73 of fig. 2 compares the extracted signal with low frequency signal from oscillator 8; note also that comparator 103 of fig. 2 compares a first and second low frequency signal); an amplitude changing unit changing an amplitude of a driving signal to be supplied to the external modulator, based on an output of the comparison unit (note amplifiers 102 and 104 and bias control circuit 9 of fig. 2); and a voltage changing unit changing an operating point voltage to be supplied to the external modulator based on the output of the comparison unit (bias control unit 9 of fig. 2 changes an operating point voltage based on the output; see also col. 3, lines 36-49).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamoto in view of Aoki (US Patent No. 5,315,426).

Regarding claims 6 and 13, as it is best understood in view of the 112 rejection above, Nakamoto does not expressly teach that superimposition unit superimposes a signal with the low frequency on an optical output of the external modulator by directly controlling a light source supplying the external modulator with light. However, directly controlling a light source rather than a modulator itself is well known in the art. For example, Aoki, from a similar field of endeavor, teaches an optical modulator having a function to compensate for the change of a static characteristic of an external modulator (see fig. 2 and Abstract) comprising a superimposition unit which superimposes a signal with the low frequency on an optical output of the external modulator by directly controlling a light source supplying the external modulator with light (see transmitter 1 of fig. 2: the light is directly controlled by the superimposition signal). It would have been obvious to a skilled artisan at the time of invention to directly control the light source as taught by Nakamoto in order to decrease on component costs.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lee whose telephone number is (571) 272-2220. The examiner can normally be reached on Monday - Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



David Lee
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